APPARATUS AND METHOD FOR MONITORING ALIGNMENT OF A CNC MACHINE SPINDLE TRUNNION AXIS A

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ABSTRACT

The present invention provides a fixture, system, and method for automatically and quickly indicating a condition of a the trunnion axis A of a computer numerically controlled (CNC) machine and optionally an alert to a machine operator. The fixture has a body preferably constructed of parallel first and second walls and a third wall disposed between, at right angles to, and connected to the first and second walls all mounted on a base. First, second, and third probe blocks are mounted on the body at first, second, and third angular positions, respectively, along an arc circumscribed by a radius about an axis of rotation. The first, second, and third blocks are mounted on an outer surface of one of the first and second parallel walls, the outer surface facing away from an other of the first and second parallel walls. The blocks include preferably co-planer respective first, second, and third flat surfaces with respective normals parallel to the axis of rotation. The first and second walls have first and second recesses respectively in their unattached ends. The recesses are preferably arcuate with edges circumscribed about the axis of rotation. A spindle mounted probe is mounted in a tool holder of a spindle of the machine and a CNC controller is used for moving and operating the spindle mounted probe. Means are provided for and measuring, recording, and displaying location data probed by the probe against the flat surfaces. The means is effective to display

the location data as a deviation from baseline measurements.